QUANTITATIVE TECHNOLOGY

Quan-Tech Laboratories

MORRISTOWN, NEW JERSEY

TENTATIVE INSTRUCTION MANUAL

Model 104

REGULATED POWER SUPPLY

QUAN-TECH LABORATORIES
236 MT. KEMBLE AVENUE
MORRISTOWN, NEW JERSEY

REGULATED POWER SUPPLY

MODEL 104

GENERAL

The Quan-Tech Regulated Power Supply Model 104 is a low voltage DC power supply for use with transistors or in other applications requiring closely regulated DC voltage with low ripple content. Three ranges are provided on both the voltmeter and milliameter to take care of a wide range of laboratory applications.

SPECIFICATIONS

Output Voltage Ranges: 0-10, 0-25, 0-50, VDC

Output Current Ranges: 0-10, 0-100, 0-1000 MaDC

Regulation: ± 0.1% or ± 10 millivolts (whichever is greater) with 105 to 125 volts line variation and zero to full load combined.

Ripple: Less than 1 millivolt RMS

Internal Impedance: Less than .03 ohm, DC to 10 Kc.

Overload Protection: A one ampere circuit breaker and dump circuit protect the transistors. A silicon diode protects the output current meter.

Power Input: 105-125 volts, 50-60 cycles, 80 watts.

Dimensions: Height 8¼", Width 11", Depth 7½" overall.

Weight: 18 lbs.

OPERATION

1. Place the power supply so that it has ventilation at the sides and back.Although the instrument will deliver full power output at ambient temperatures up to 40° C (104F),it should preferably not be placed on top of other equipment that liberates a large amount of heat.

2. Plug the power cord into a source of 105-125 volt, 60 cycle, AC power.

   NOTE: A full ampere output current at the higher output voltages may not be obtainable if the line voltage is below approximately 110 V.

3. Turn the VOLTS FULL SCALE switch to 50 and power switch to ON. The red QTL emblem should glow. Advance both VOLTAGE knobs fully clockwise. The voltmeter should read full scale.The current meter should read zero on all three scales. The power supply may now be connected to the load.

MAINTENANCE AND REPAIR

1. Quan-Tech Power Supply Model 104 requires no routine maintenance. It should be removed from its case only if repair is required.

2. To take off the case, place the instrument face down on the bench and remove the four rubber feet. Pull the carrying handle all the way out, and slide the case off the instrument.

3. The pilot light, a #53, 12 volt bulb, may be replaced by removing the six screws holding the front panel and sliding the panel forward. In replacing the panel, make sure the connecting cables clear the pilot light and the lips of the chassis.

4. The majority of the components in this instrument are standard commercial parts, available at most suppliers. Special replacement parts, such as transformers, meters, etc. can be obtained from Quan-Tech Laboratories.

5. In replacing components on the printed circuit board, the iron should be just hot enough to melt the solder quickly. Avoid prolonged heating and pressure that might push the copper away from the board while hot.

CIRCUITRY

The Power Supply circuit consists of the following principal parts:

1. A variable autotransformer driving a step-down transformer and the main silicon rectifier.

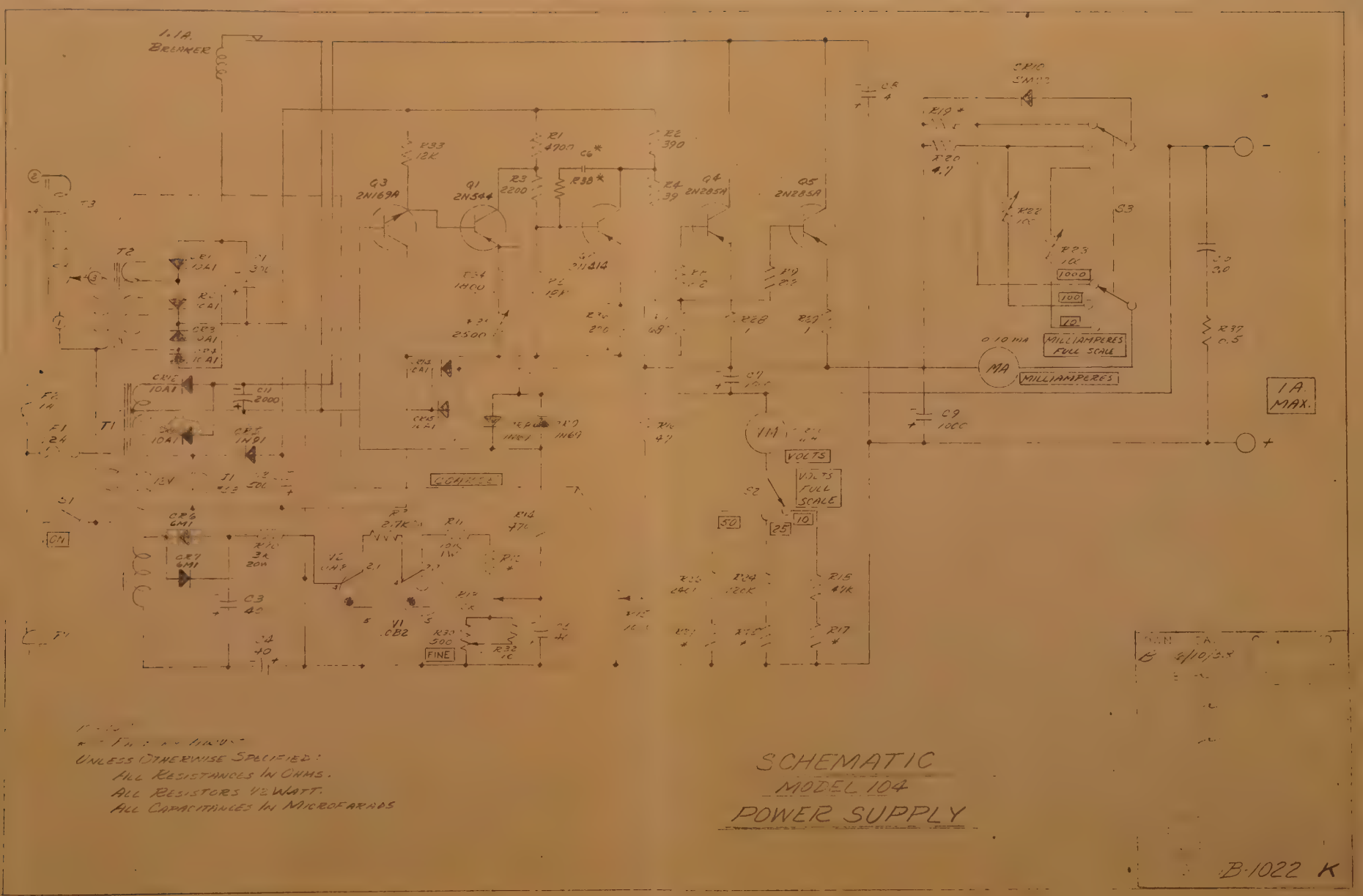
2. A four stage transistor regulator.

3. A separate transformer supplying power for the transistor regulator and the voltage reference.

4. A dual-regulated voltage reference, ganged to the variable autotransformer.

Complete overall degeneration of the regulator circuit provides close regulation of the output voltage and extremely low internal impedance to approximately 10 KC. Due to the frequency cut-off characteristics of the power transistors and the internal inductance of the wiring and components, the internal impedance rises from less than 0.03 ohms at 10 KC to approximately 1 ohm at 1 MC.

In addition to circuit breaker and fuse protection against sustained overload, a silicon diode by-passes short circuit current and voltage transients around the transistor regulator. This protects the transistors until the circuit breaker trips.



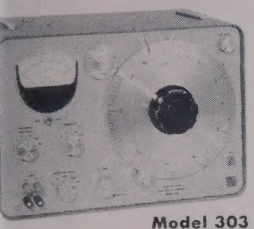
UNLESS OTHERWISE SPECIFIED:
ALL RESISTANCES IN OHMS.
ALL RESISTORS ½ WATT.
ALL CAPACITANCES IN MICROFARADS

SCHEMATIC
MODEL 104
POWER SUPPLY

B 4/10/58

B-1022 K

QUAN-TECH ELECTRONIC INSTRUMENTS



Model 303

Designed especially for applications in the fields of ultrasonics and noise spectrum analysis. Switch enables you to select any of four constant bandwidths. Two broadest positions are flat topped, vastly increasing the simplicity of tuning at high frequencies

New! — Wave and Noise Spectrum Analyzer

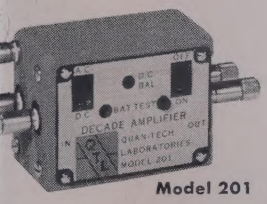
Frequency Range: 30 cycles to 100 kc, ±300 cycle vernier
Voltage Range: 100 microvolts to 300 volts full scale.
Bandwidth: —3 db at 10 and 30 cycles round top; 100 cycles and 1 kc. flat top.
Monitor Output: Meter output and a voltage proportional to dial setting provide graphic display on oscilloscopes and X-Y recorders
Price: $1200.00

Provides constant output current, variable over a wide range, and independent of the voltage drop across the load. Extremely useful for transistor applications, potentiometer noise measurements, strain gage applications, etc.

Model 151

New! Constant Current Supply

Output: 0.5 to 500 ma. DC in three ranges: 0.5 to 5 ma; 5 to 50 ma; and 50 to 500 ma. 20 volts maximum output voltage.
Power input: 105-125 volts, 50-60 cycles, 25 watts.
Price: $225.00



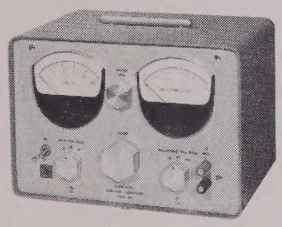
Model 201

Extremely compact and stable, a completely self-contained miniature amplifier. Its DC response, low noise, and freedom from microphonics make it exceptionally useful with DC oscilloscopes and in sub-sonic as well as conventional applications.

DC-Coupled Decade Amplifier

Gain: 10 ±2%, flat within ±2% DC to 100 KC.
Input: 400k ohms and 30 mmf, 20 uv input noise.
Output: 100 ohms, 1 volt P-P max, ½% distortion.
Batteries: Three ZM 9 mercury cells, life 600 hrs.
Price: $85.00

Models 104 and 121 Power Supplies feature 0.1% regulation and metered ranges of voltage and current. Models 101, 102, 103, and 105 (not shown) are compact, lightweight supplies providing voltage metering and 0.25% regulation. Continuous adjustment and overload protection on all models.



Model 104

Transistorized Power Supplies

Model 101:	0- 8 volts DC, 0- 2 amps.	Price $195.00
Model 102:	0-14 volts DC, 0- 1 amp.	Price $175.00
Model 103:	0-30 volts DC, 0-½ amp.	Price $175.00
Model 104:	0-50 volts DC, 0- 1 amp.	Price $375.00
Model 105:	0-50 volts DC, 0-¼ amp.	Price $205.00
Model 121:	0-15 volts DC, 0- 5 amps.	Price $425.00

Model 301

Enables rapid, accurate AC current measurements and observations of wave forms in transistors, magnetic amplifiers, small servo systems, etc. A clamp-on probe and an insertion probe are provided with each instrument.

AC Microammeter

vity: 3 ua to 100 ma full scale (300 ua to 100 ma—clamp on probe.
ncy: ±2% 50 ~ to 100 KC (±5% 100 ~ to 100 KC—clamp on probe).
impedance: 2 ohms—3 ua to 1 ma; negligible 300 ua to 100 ma.
$290.00

Also available is Model 202 Isolation Amplifier, custom-built power supplies, and amplifiers to your specifications.

We welcome any requests for information regarding specific applications of Quan-Tech instruments.

Prices and specifications subject to change without notice.

Quan-Tech
LABORATORIES
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